

## Claims

- Sub A 2
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- 1 A personal care or cosmetic oil in water emulsion which includes as an emulsifier stabiliser system, an emulsifier for the oil and a polysaccharide combination of a Xanthan polysaccharide and a polyglucomannan polysaccharide.
  - 5 2 An emulsion as claimed in claim 1 wherein the polyglucomannan polysaccharide has a random glucose/mannose backbone at a molar ratio of glucose to mannose of from 1:1.5 to 1:3.
  - 3 An emulsion as claimed in either claim 1 or claim 2 wherein the polyglucomannan polysaccharide is a polyglucomannan derived from Konjak.
  - 10 4 An emulsion as claimed in any one of claims 1 to 3 in which the weight ratio of Xanthan to polyglucomannan is from 1:10 to 10:1, particularly 2:1 to 1:2.
  - 5 An emulsion as claimed in any one of claims 1 to 4 in which the polysaccharide combination of a Xanthan polysaccharide and a polyglucomannan polysaccharide is present as from 0.02 to 0.5%, particularly from 0.025 to 0.15%, by weight of the emulsion.
  - 15 6 An emulsion as claimed in any one of claims 1 to 4 in which the emulsifier is or includes one or more non-ionic emulsifier(s) selected from:
    - 1 alkoxyate emulsifiers, particularly derived from fatty acid esters, ethers, hemi-acetals or acetals of polyhydroxylic compounds or a fatty acid amide which is N-substituted with the residue of a polyhydroxylic compound;
    - 20 2 - fatty acid esters, ethers, hemi-acetals or acetals of polyhydroxylic compounds, or a fatty acid amide which is N-substituted with the residue of a polyhydroxylic compound, particularly a saccharide fatty acid ester.
  - 7 An emulsion as claimed in claim 6 wherein the emulsifier is or includes one or more alcohol alkoxyates, particularly ethoxyates.
  - 25 8 An emulsion as claimed in claim 6 wherein the emulsifier is or includes one or more saccharide esters of fatty acids and a sugar, particularly sucrose, fructose and/or glucose, in which the mono-ester content is at least 60%.
  - 9 An emulsion as claimed in any one of claims 1 to 8 in which the amount of emulsifier is from 0.02 to 1.5%, particularly from 0.1 to 1.5%, by weight of the emulsion.

- 10 An emulsion as claimed in claim 9 wherein the emulsifier is or includes at least one alkoxyate emulsifier with an average of from 10 to 100 alkylene oxide residues and having an HLB greater than 12 and the amount of emulsifier used is from 0.04 to 0.1% by weight of the emulsion.
- 5 11 An emulsion as claimed in any one of claims 1 to 10 in which the emulsifier includes at least one hydrophilic non-ionic emulsifier having an HLB of at least 12 and at least one hydrophobic non-ionic emulsifier having an HLB of less than 8.
- 12 An emulsion as claimed in claim 11 wherein the hydrophilic emulsifier is or includes at least one of alkoxyate emulsifiers with an average of from 10 to 100 alkylene oxide residues; sugar mono-esters; polyglycerol mono-esters; hydrocarbyl polysaccharides; fatty acid glycerol esters where the fatty acid has 8 to 12 carbon atoms; and fatty acid N-sugar amides such as glucamides, and the hydrophobic emulsifier is or includes at least one of alkoxyate emulsifiers with an average of from 2 to about 10 alkylene oxide residues; glycerol esters where the fatty acid has 14 to 24 carbon atoms; and anhydrosaccharide fatty esters.
- 10 13 An emulsion as claimed in either claim 11 or claim 12 in which the amount of the hydrophilic emulsifier is from 0.04 to 0.5% by weight of the emulsion and the amount of the hydrophobic emulsifier is from 0.1 to 1% by weight of the emulsion.
- 15 14 An emulsion as claimed in any one of claims 1 to 13 in which the oil phase is or includes an emollient oil.
- 20 15 An emulsion as claimed in claim 14 wherein the emollient oil is or includes at least one normally liquid emollient oil selected from mineral oils, paraffin oils, vegetable glyceride oils, animal glyceride oils, synthetic ester oils, synthetic ether oils, silicone oils, fatty alcohol propoxylates or a solid liquefiable emollient fat or wax, or a mixture of such emollients .
- 16 25 An emulsion as claimed in any one of claims 1 to 15 in which the oil phase is at least 5% by weight of the emulsion.
- 17 An emulsion as claimed in any one of claims 1 to 16 in the form of a milk having a low shear viscosity of from 100 to 10000 mPa.s.
- 18 An emulsion as claimed in any one of claims 1 to 16 in the form of a cream having a low shear viscosity of from 30000 to 80000 mPa.s.

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- 19 An emulsion as claimed in claim 18 in the form of a cream which includes as a thickener one or more fatty amphiphiles and/or one or more polymeric thickeners .
- 20 An emulsion as claimed in any one of claims 1 to 19 which includes:  
from 1 to 80% by weight of at least one oil;  
5 from 0.02 to 1.2% by weight of at least one alkoxide emulsifier having an HLB of at least 12;  
optionally from 0.1 to 1.2% by weight of at least one emulsifier having an HLB of less than 8;  
the total amount of emulsifier being from 0.02 to 1.5% by weight;  
from 0.02 to 0.5% by weight of at least one polysaccharide stabiliser;  
optionally from 0.1 to 10% by weight of at least one thickener;  
10 the remainder being minor components and additives and water.
- 21 An emulsion as claimed in any one of claims 1 to 19 which includes:  
from 1 to 80% by weight of at least one oil;  
from 0.2 to 1.2% by weight of at least one emulsifier having an HLB of at least 12, which is at  
least one fatty acid ester, ether, hemi-acetal or acetal of a polyhydroxylic compound, or  
15 fatty acid amide which is N-substituted with the residue of a polyhydroxylic compound;  
optionally from 0.1 to 1.2% by weight of at least one emulsifier having an HLB of less than 8;  
the total amount of emulsifier being from 0.1 to 1.5% by weight;  
from 0.02 to 0.5% by weight of at least one polysaccharide stabiliser;  
optionally from 0.1 to 10% by weight of at least one thickener;  
20 the remainder being minor components and additives and water.
- 22 An emulsion as claimed in any one of claims 1 to 21 which has a pH of from 4 to 9.
- 23 An emulsion as claimed in any one of claims 1 to 22 which additionally includes one or more  
of: preservatives; perfumes; humectants or solvents; sunfilter or sunscreen materials; alpha  
hydroxy acids; self-tanning agents; antimicrobial components; Vitamins and their precursors;  
25 skin care agents; phospholipids; vesicle-containing formulations; germanium-containing  
compounds; botanical extracts; skin whiteners; skin repair compounds; caffeine; cooling  
additives; insect repellents; essential oils; and pigments.
- 24 A method of making an emulsion as claimed in any one of claims 1 to 23 by direct  
emulsification, in which the emulsifier(s) and polysaccharide stabiliser are incorporated into  
30 the aqueous phase, optionally including thickener components in the aqueous phase, and  
then mixing the oil into the aqueous continuous phase to emulsify it.

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- 25 A method as claimed in claim 24 in which the polysaccharide stabiliser in the aqueous phase is heated to above about 60°C and or is subjected to high intensity mixing.
- 26 A method of making an emulsion as claimed in any one of claims 1 to 25 by inverse emulsification, in which the emulsifier(s) and polysaccharide stabiliser are incorporated into the oil phase and the aqueous phase is then mixed into the oil phase until the system inverts to form an oil in water emulsion.
- 27 A method as claimed in claim 26 in which the polysaccharide stabiliser in contact with the aqueous phase is heated to above about 60°C, and/or is subjected to high intensity mixing.
- 28 A dry blend emulsifier stabiliser formulation which includes an oil emulsifier and an oil in water emulsion stabiliser which is a polysaccharide combination of a Xanthan polysaccharide and a polyglucomannan polysaccharide.
- 29 A formulation as claimed in claim 28 which further includes a sugar.
- 30 A dry blend as claimed in either claim 28 or 29 which includes:  
from 2 to 10 parts by weight of Xanthan;  
from 2 to 10 parts by weight of polyglucomannan;  
the weight ratio of Xanthan to polyglucomannan being from 1:4 to 4:1;  
from 30 to 75 parts by weight of an emulsifier having an HLB of at least 12;  
optionally from 5 to 40 parts by weight of an emulsifier having an HLB of less than 8; and  
optionally from 2 to 10 parts by weight of milling aid (sugar).
- 31 A dry blend as claimed in any one of claims 28 to 30 which has a mean particle size of from about 100 to about 500µm.
- 32 A dry blend as claimed in claim 31 wherein the proportion of particles of size lower than 50µm is less 2% by weight.
- 33 The use of a polysaccharide combination of a Xanthan polysaccharide and a polyglucomannan polysaccharide as an emulsifier stabiliser system in personal care or cosmetic oil in water emulsions.

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